



novel EGIII-like cellulase of *Streptomyces* sp. T1A28. It was deduced from a gene sequence isolated from genomic DNA using PCR primers (see AAY0140-9) based on conserved motifs (see AAY06325-29) of *Trichoderma reesei* EGIII cellulase and related enzymes. PCR has been used to identify novel EGIII-like enzymes, including the present product, from bacterial and fungal sources (see AAY06331-70). The sequence shows homology to *T. reesei* EGIII (see AAY06330). Also provided by the inventor are various local cellulos and methods for the treatment of such enzymes, which can be used in the treatment of cellulose containing textiles, as food additives in the treatment of wood pulp, in the reduction of biomass to glucose, in the stone washing of indigo dyed denim, or as laundry detergent components (all claimed).

Sequence: 471 AA.

Query Match 62.4% Score 43; DB 21; Length 471;

Best Local Similarity 62.7% Ident. No. 40; Mismatches 3; Indels 0; Gaps 0;

2 AM000185850.1

1 1111111

657 apdqrlhdsr qqr

RESULT 2

AM013900

AM013900 standard; Protein: 471 AA.

XX AM013900

XX 21 NOV 1999 (first entry)

XX Streptomyces lividans strain EGIII-like cellulase.

XX Streptomyces lividans; *Trichoderma reesei*; endoglucanase III; EGIII;

KW cellulase mutant; enzyme stability; textile treatment;

KW wood pulp treatment; feed additive; detergent;

XX Streptomyces lividans.

XX W020000414 A2.

XX 29 JUN 2000.

XX 12 NOV 1999; 99WO 0526704.

XX 18 DEC 1998; 98US 0216296.

XX (GENEV) GENE90R INT 1N7.

XX M010000002 Wood 101;

XX WPI: 2000 102102742.

XX Novel endoglucanase III or endoglucanase III-like cellulase used for treatment of textiles and wood pulp comprises a substituted form of defined at specified positions in the wild form of endoglucanase III.

XX Example 1; Fig 3; 7qpp; English.

XX The present sequence is a cellulase related to endoglucanase III (EGIII) from *Trichoderma reesei*. EGIII-like genes were isolated from genomic DNA libraries constructed from various microorganisms by PCR. The isolated genes showed significant homology to EGIII from *T. reesei*. Cellulase substitution and deletion mutations have been incorporated into EGIII and EGIII-like cellulases to produce variant enzymes with improved stability, e.g., increased resistance to temperature stress. The mutants may be used in textile and wood pulp treatment as a feed additive, and for reducing biomass to glucose. They are also useful for stonewashing or indigo dyed denim and as an agent in laundry and dish detergents.

SO Sequence: 471 AA:

Query Match 62.4% Score 43; DB 21; Length 471;

Best Local Similarity 62.7% Ident. No. 40; Mismatches 3; Indels 0; Gaps 0;

2 AM000185850.1

1 1111111

657 apdqrlhdsr qqr

RESULT 4

AA04445

AA04445 standard; Protein: 471 AA.

XX AA04445

XX 12 JUL 2000 (first entry)

XX Amino acid sequence of an endoglucanase III (EGIII) like cellulase.

KW endoglucanase III; EGIII; EGIII-like cellulase; surfactant stability;

KW cellulase; textile processing; textile cleaning; stonewashing;

KW indigo dyed denim; cellulose containing fabric; fabric smoothness;

KW fill removal; fill removal; cellulase; cellulase; textile dyeing; detergent;

KW animal feed; wood pulp; paper; grain; biomass; reduction; glucose.

XX Actinomyces sp.

XX W020001420H A1.

XX 16 MAR 2000.

XX 24 AUG 1999; 99WO 0519154.

XX 03 SEP 1998; 98US 0146729.

XX (GENEV) GENE90R INT 1N7.

XX Fowler 1;

XX WPI: 2000 271052724

XX Disclosure: Page 64 65; 7qpp; English.

XX The present sequence represents an endoglucanase III (EGIII)-like cellulase. The cellulase has homology to the *Trichoderma reesei* EGIII protein. The variant cellulases have improved temperature stability and improved resistance to stability. The variant cellulases and compositions containing them are used in textile processing or cleaning, e.g., stonewashing of indigo dyed denim, and modifying the texture, feel or appearance of cellulose containing fabrics (e.g., improving fabric smoothness or removing pills and fibrils). The compositions may also be used for the removal of immature or dead cotton from cellulosic fibres or fabric, which can cause uneven dyeing. The cellulase may also be used in a detergent composition for washing laundry and dishes and in the treatment of animal feed, wood pulp, paper, non-animal foods and stains.

XX The enzymes may also be used in the reduction of biomass to glucose.

XX Sequence: 471 AA:

XX Query Match 62.4% Score 43; DB 21; Length 471;

XX Best Local Similarity 62.7% Ident. No. 40;

XX Mismatches 3; Indels 0; Gaps 0;

2 AM000185850.1

1 1111111

657 apdqrlhdsr qqr

RESULT 4

AA04445

AA04445 standard; Protein: 471 AA.

XX AA04445

XX 12 JUL 2000 (first entry)

XX Amino acid sequence of an endoglucanase III (EGIII) like cellulase.

KW endoglucanase III; EGIII; EGIII-like cellulase; surfactant stability;



XX	AA00082 standard; protein; 64 AA.
XX	AA00087.
XX	17 OCT 2000 (first entry)
XX	
XX	Arabidopsis thaliana protein fragment SEQ ID NO: 6516.
XX	
KK	Protein identification signal transduction pathway motif by motif localisation assay; protein mapping; gene expression motif; protein motif localisation assay.
XX	
XX	Arabidopsis thaliana.
XX	EP033405.A2.
XX	
XX	06 SEP 2000.
XX	
XX	25 FEB 2000; 2000EP 030149.
XX	
XX	25 FEB 1999; 9908 01 21826. 05 MAR 1999; 9908 01 24180. 09 MAY 1999; 9908 01 24534. 23 MAR 1999; 9908 01 25788. 25 MAR 1999; 9908 01 26264. 29 MAR 1999; 9908 01 26785. 01 APR 1999; 9908 01 27462. 06 APR 1999; 9908 01 28254. 08 APR 1999; 9908 01 28714. 16 APR 1999; 9908 01 29845. 19 APR 1999; 9908 01 30077. 21 APR 1999; 9908 01 30449. 24 APR 1999; 9908 01 30510. 24 APR 1999; 9908 01 30891. 28 APR 1999; 9908 01 31449. 30 APR 1999; 9908 01 32048. 04 APR 1999; 9908 01 32407. 04 MAY 1999; 9908 01 32485. 05 MAY 1999; 9908 01 32495. 06 MAY 1999; 9908 01 32486. 06 MAY 1999; 9908 01 32487. 07 MAY 1999; 9908 01 32868. 11 MAY 1999; 9908 01 32956. 14 MAY 1999; 9908 01 34218. 14 MAY 1999; 9908 01 34219. 14 MAY 1999; 9908 01 34221. 14 MAY 1999; 9908 01 34370. 18 MAY 1999; 9908 01 34764. 19 MAY 1999; 9908 01 34941. 20 MAY 1999; 9908 01 35124. 21 MAY 1999; 9908 01 35365. 24 MAY 1999; 9908 01 35629. 25 MAY 1999; 9908 01 36021. 27 MAY 1999; 9908 01 36392. 28 MAY 1999; 9908 01 36782. 01 JUN 1999; 9908 01 37222. 03 JUN 1999; 9908 01 37528. 04 JUN 1999; 9908 01 37902. 07 JUN 1999; 9908 01 37724. 08 JUN 1999; 9908 01 38004. 10 JUN 1999; 9908 01 38540. 10 JUN 1999; 9908 01 38847. 14 JUN 1999; 9908 01 39119. 16 JUN 1999; 9908 01 39652. 16 JUN 1999; 9908 01 39653. 17 JUN 1999; 9908 01 39492. 18 JUN 1999; 9908 01 39454. 18 JUN 1999; 9908 01 39455. 18 JUN 1999; 9908 01 39456. 18 JUN 1999; 9908 01 39457. 18 JUN 1999; 9908 01 39458. 18 JUN 1999; 9908 01 39459. 19 JUN 1999; 9908 01 39460. 19 JUN 1999; 9908 01 39461. 19 JUN 1999; 9908 01 39462.

[illegible]







